

Do not
enter

Application No. 10/705,533

Reply to Office Action

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A polishing pad for use in chemical-mechanical polishing comprising a biodegradable polymer, wherein the biodegradable polymer comprises a repeat unit selected from the group consisting of glycolic acid, lactic acid, hydroxy alkanoic acids, hydroxybutyric acid, hydroxyvaleric acid, caprolactone, *p*-dioxanone, trimethylene carbonate, butylene succinate, butylene adipate, ~~monosaccharides~~, dicarboxylic acid anhydrides, enantiomers thereof, and combinations thereof, and wherein the polishing pad has a polishing surface and is in the form of a non-porous solid polymer sheet, a cellular polymer foam micropellets of the biodegradable polymer dispersed in a non-biodegradable polymer resin, or sintered thermoplastic particles micropellets of the biodegradable polymer.

2. (Original) The polishing pad of claim 1, wherein the biodegradable polymer comprises a repeat unit selected from the group consisting of L-lactic acid, D-lactic acid, or a combination thereof.

3. (Original) The polishing pad of claim 1, wherein the biodegradable polymer is cross-linked.

4. (Currently Amended) The polishing pad of claim 1, wherein the biodegradable polymer is selected from the group consisting of polyglycolide, polycaprolactone, poly(dioxanone), poly(trimethylene carbonate), polyglyconate, polyhydroxybutyrate, polyhydroxyvalerate, ~~polysaccharides~~, poly(1,4-butylene succinate), poly(1,4-butylene adipate), polyanhydrides, polyorthoesters, and combinations thereof.

5. (Original) The polishing pad of claim 1, wherein the biodegradable polymer is selected from the group consisting of DL-polylactide, D-polylactide, L-polylactide, poly(DL-lactide-co-glycolide), poly(ethylene glycol-co-lactide), poly(L-lactide-co-caprolactone-co-glycolide), and combinations thereof.

Application No. 10/705,533

Reply to Office Action

6. (Original) The polishing pad of claim 1, wherein the polishing pad further comprises abrasive particles.

7. (Original) The polishing pad of claim 6, wherein the abrasive particles are selected from metal oxide particles, boron nitride particles, diamond particles, ceramic particles, and combinations thereof.

8. (Original) The polishing pad of claim 6, wherein the abrasive particles are disposed on a polishing surface of the polishing pad or are dispersed throughout the body of the polishing pad.

9.-12. (Canceled)

13. (Currently Amended) The polishing pad of claim 1, ~~further comprising a~~ wherein the non-biodegradable polymer resin is selected from the group consisting of thermoplastic elastomers, thermoplastic polyurethanes, thermoplastic polyolefins, polycarbonates, polyvinylalcohols, nylons, elastomeric rubbers, elastomeric polyethylenes, polytetrafluoroethylenes, polyethyleneterephthalates, polyimides, polyaramides, polyarylenes, polystyrenes, polymethylmethacrylic acids, polyethylene oxides, rubbers, copolymers thereof, and mixtures thereof.

14. (Currently Amended) The polishing pad of claim 1, wherein the polishing pad is in the form of ~~a cellular polymer foam~~ micropellets of the biodegradable polymer dispersed in a non-biodegradable polymer resin.

15. (Withdrawn) A method of polishing a workpiece comprising

- (i) providing a workpiece to be polished,
- (ii) contacting the workpiece with a polishing system comprising the polishing pad of claim 1 and a polishing composition, and
- (iii) moving the polishing pad relative to the workpiece with the polishing composition therebetween to abrade the workpiece and thereby polish the workpiece.

Application No. 10/705,533

Reply to Office Action

16. (Withdrawn) The method of claim 15, wherein the workpiece comprises a metal layer.
17. (Withdrawn) The method of claim 16, wherein the metal layer comprises a metal selected from the group consisting of tantalum, aluminum, tungsten, titanium, platinum, iridium, rhodium, ruthenium, gold, silver, nickel, alloys thereof, oxides thereof, and combinations thereof.
18. (Withdrawn) The method of claim 16, wherein the metal layer comprises copper.
19. (Withdrawn) The method of claim 18, wherein the biodegradable polymer is a homopolymer, block copolymer, graft copolymer, or random copolymer comprising a repeat unit selected from the group consisting of glycolic acid, lactic acid, hydroxyalkanoic acids, hydroxybutyric acid, hydroxyvaleric acid, caprolactone, *p*-dioxanone, trimethylene carbonate, butylene succinate, butylene adipate, monosaccharides, dicarboxylic acid anhydrides, enantiomers thereof, and combinations thereof.
20. (Withdrawn) The method of claim 19, wherein the biodegradable polymer comprises a repeat unit selected from the group consisting of L-lactic acid, D-lactic acid, or a combination thereof.
21. (Withdrawn) The method of claim 19, wherein the biodegradable polymer is cross-linked.
22. (Withdrawn) The method of claim 21, further comprising abrasive particles.
23. (Withdrawn) The method of claim 18, further comprising a polymer resin selected from thermoplastic elastomers, thermoplastic polyurethanes, thermoplastic polyolefins, polycarbonates, polyvinylalcohols, nylons, elastomeric rubbers, elastomeric polyethylenes, polytetrafluoroethylenes, polyethyleneterephthalates, polyimides, polyaramides, polyarylenes, polystyrenes, polymethylmethacrylic acids, polyethylene oxides, rubbers, copolymers thereof, and mixtures thereof.

Application No. 10/705,533

Reply to Office Action

24. (Withdrawn) The method of claim 15, wherein the polishing composition comprises about 2 wt.% or less complexing agent.

25. (Withdrawn) The method of claim 24, wherein the polishing composition comprises about 0.1 wt.% or less complexing agent.

26. (Currently Amended) The polishing pad of claim 1, wherein the polishing pad is in the form of a ~~non-porous~~ solid polymer sheet.

27. (Currently Amended) The polishing pad of claim 1, wherein the polishing pad is in the form of sintered ~~thermoplastic particles~~ micropellets of the biodegradable polymer.